

# **COMPOSITE BEAR CANISTER**

**W. Richard Chung**

Department of Chemical & Materials Engineering  
San Jose State University  
San Jose, California 95192-0082

Telephone 408-924-3927  
e-mail wrchung@email.sjsu.edu

and

**Steve Jara**

and

**Susan Suffel**

NASA-Ames Research Center  
Moffett Field  
California 94035-1000



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### ***Abstract***

To many national park campers and mountain climbers saving their foods in a safe and unbreakable storage container without worrying being attacked by a bear is a challenging task. In some parks, the park rangers have mandated that park visitors rent a bear canister for their food storage. Commercially available bear canisters are made of ABS plastic, weigh 2.8 pounds, and have a 180 cubic inch capacity for food storage. A new design with similar capacity was conducted in this study to reduce its weight and make it a stiffer and stronger canister. Two prototypes incorporating carbon prepreg with and without honeycomb constructions were manufactured using hand lay-up and vacuum bag forming techniques. A 6061-T6-aluminum ring was machined to dimensions in order to reinforce the opening area of the canister. Physical properties (weight and volume) along with mechanical properties (flexural strength and specific allowable moment) of the newly fabricated canisters are compared against the commercial ones. The composite canister weighs only 56% of the ABS one can withstand 9 times of the force greater. The advantages and limitations of using composite bear canisters will be discussed in the presentation.